

Market Business

The European e-Business Report

A portrait of e-business
in 10 sectors of the EU economy

2004 edition

e-business
w@tch



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The European *e-Business W@tch* 2003/04



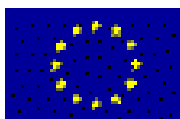
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A portrait of e-business
in 10 sectors of the EU economy

3rd Synthesis Report of the *e-Business W@tch*

September 2004



European Commission
Enterprise Directorate General

The e-Business W@tch

The European Commission, Enterprise Directorate General, launched the *e-Business W@tch* to monitor the growing maturity of electronic business across different sectors of the economy in the enlarged European Union and in EEA countries. Since late 2001 the *e-Business W@tch* has analysed e-business developments and impacts in 17 manufacturing, financial and service sectors. All publications of the *e-Business W@tch* – including this report – are available in electronic format on the Internet either via the Europa server or directly at the *e-Business W@tch* website (www.europa.eu.int/comm/enterprise/ict/policy/watch/index.htm, www.ebusiness-watch.org).

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Copies can be requested, free of charge, directly from the *e-Business W@tch* from the following e-mail address: info@ebusiness-watch.org. The report is also available in electronic format and can be downloaded from the "Publications" section of the *e-Business W@tch* website (www.ebusiness-watch.org).

A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>).

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Foreword



Increasing the productivity and competitiveness of European enterprises is a key objective of the Lisbon agenda. However, in its report to the 2004 Spring European Council on "Delivering Lisbon"¹, the Commission has warned that productivity levels in the EU are still not rising as originally envisaged. A major factor is that the impact of information and communication technologies (ICT) on enterprise productivity appears to be significantly lower in Europe than in the United States.

ICT are important in improving the efficiency of business processes and promoting innovation in European enterprises. However, mere investment in these technologies is not enough, as technology by itself does not automatically lead to substantial efficiency gains. Electronic business practices will only achieve their potential when accompanied by a high level of managerial understanding and the commitment to re-engineer working and business processes in a changing competitive environment. Moreover, there is no single "recipe" for all firms. As clearly demonstrated by *e-Business W@tch* during the last couple of years, opportunities and related requirements differ considerably between sectors and companies of different sizes.

e-Business W@tch results are helping policy-makers better understand the different dynamics and implications of ICT usage in various sectors of the European economy. The combination of representative surveys, case studies and networking with experts from industry and statistical research has created a valuable knowledge base. *e-Business W@tch* is a powerful policy instrument alongside the e-Business Support Network, the European eSkills Forum, the eMarketservices portal, initiatives regarding the legal aspects of doing business electronically and the eEurope 2005 Standardisation Action Plan. Together these activities make a significant contribution to creating a favourable environment that will improve the effectiveness of European companies' investments in ICT and, consequently, enhance their competitiveness.



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¹ COM(2004) 29 final

Introduction to the *e-Business W@tch*

The *e-Business W@tch* – observatory and intermediary since late 2001

The *e-Business W@tch* monitors the adoption, development and impact of electronic business practices in different sectors of the European economy. The eEurope 2002 Action Plan provided the basis for targeted actions to stimulate the use of the Internet for accelerating e-commerce. The eEurope 2005 Action Plan, endorsed by the Seville European Council in June 2002, confirmed the goal "to promote take-up of e-business with the aim of increasing the competitiveness of European enterprises and raising productivity and growth through investment in information and communication technologies, human resources (notably e-skills) and new business models".

Against this background, the European Commission, Enterprise Directorate General, launched in late 2001 the *e-Business W@tch* initiative to analyse e-business impacts at the sectoral level, placing special emphasis on the implications for SMEs. Since its launch, *e-Business W@tch* has published Impact Studies on 17 different sectors of the European economy, two comprehensive synthesis reports, statistical pocketbooks and other resources (all available under 'Publications' at www.ebusiness-watch.org).² The quantitative analysis about the diffusion of ICT and e-business is based to a large extent on annual, representative surveys among decision-makers of European enterprises.³

The large demand for the various publications and statistics provided by the *e-Business W@tch*, and their exploitation by other research institutions (for example, in the EITO Yearbook 2003 and in the OECD Information Technology Outlook 2004), confirms the demand for sectoral e-business analysis. Facilitated by positive responses and the growing interest in its results, the *e-Business W@tch* is increasingly developing from an observatory into a think-tank, stimulating the debate about the economic and policy implications of e-business among relevant stakeholders at an international level.

The wide-angle perspective: the *e-Business W@tch* provides the "big picture" as a basis for further research

Over the past 10 years, "electronic business" has increased from a very specific to a very broad topic to be studied. In 2004, the OECD concisely defines e-business as "*automated business processes (both intra-and inter-firm) over computer mediated networks*". This definition makes clear that e-business is more than e-commerce (which focuses on commercial transactions between companies and their customers, be it consumers or other companies), as well as that it includes processes both within a company and between companies. The OECD definition implicitly indicates that the main objective and focus of e-business is in business process automation and integration – and the impacts thereof.

This implies that the potential scope for e-business analyses has also broadened. The measurement of e-commerce transactions (the volume of goods and services traded online) can and should be complemented by studies analysing the degree to which business processes, including intra-firm transactions, are electronically linked to each other and have become digitally integrated. In such a context, however, it becomes practically impossible to cover in depth all areas and facets of e-business in one study. Hence, the scope of such a study needs to be carefully defined and, as in photography, it must be decided whether to "zoom in" or to use a "wide-angle" perspective.

The mission of the *e-Business W@tch* is to present a "wide-angle" perspective on e-business developments and practices in the sectors covered. This has important implications regarding the level

² For further details, see Annex II.

³ For further details, see Annex III.

of detail in which various issues can be explored, both in terms of the quantitative picture (survey) and in terms of the qualitative assessment and background research.

The role of economic analysis in the Sector Reports

The first chapter of each *e-Business W@tch* Sector Study provides background information on the respective sector. This overview includes the definition of the sector (on the basis of NACE Rev. 1 classification), some basic industry statistics⁴, as well as information about the latest trends and challenges concerning the specific sector. In the context of its principal assignment, the *e-Business W@tch* cannot go beyond the presentation of this consistent set of statistics.

It appears that this practice, combined with the growing interest in the *e-Business W@tch* analysis, has caused some confusion: Some readers mistakenly consider that an *e-Business W@tch* "sector report" is a piece of economic research on the sector itself, and not a report focussing on the use of e-business in that particular sector. It is, therefore, necessary to underline that, while some background information is provided in order to better understand the context and the economic impact of e-business, the *e-Business W@tch* reports are neither intended to nor could be substitutes for more detailed and specific industrial analysis and statistics on each particular industry.

The mission of *e-Business W@tch* is to monitor, analyse and compare the development of e-business in different sectors of the European economy – not the sectors themselves. Its objective is to provide reliable results, based on commonly accepted methodologies, which are not readily available from other sources and would trigger the interest of policy-makers, researchers, and other e-business stakeholders for more in depth analyses (or statistical surveys). The *e-Business W@tch* observatory has adopted a "wide-angle" perspective in its approach and the necessary trade-offs are transparently depicted in all its deliverables.

The definition of sectors and the adequate level of aggregation

Economic sectors constitute the main level of analysis for the *e-Business W@tch*. In 2003/04, the sample consists of ten sectors. Their configuration and definition are based on the NACE Rev. 1 classification of business activities. The aggregation of various NACE divisions and groups into a "sector" was guided by the aim to produce results which are relevant for the dynamics of the economy as a whole, as well as with the intention of covering the most important features of e-business provision and adoption in Europe. The configuration of sectors partly followed aggregations that are used in the "Panorama of European Businesses" published by Eurostat.

In the context of its "wide-angle" perspective, the *e-Business W@tch* analysis is covering a large part of the European economy rather than focusing on very specific (sub-)sectors. Therefore, the statistics presented in these reports need to be carefully treated when making comparisons between countries and, occasionally, companies' size-classes. Against the previously described background, some generalisation and approximation has to be accepted, while the definition of sectors could be revisited during the implementation of the *e-Business W@tch*.

The 10 sectors which have been studied in 2003/04 include eight sectors that were already covered in 2002/03 (thus allowing the continuous monitoring of changes and progress), as well as two new ones (namely the textile, clothing and footwear industries and the craft and trade sector).⁵

⁴ For further details, see Annex II ('Industry statistics from secondary sources')

⁵ For further details on the rationale for the selection of sectors, see www.ebusiness-watch.org ('About' / 'Sectors Covered')

Exhibit: Sectors covered by the e-Business W@tch in 2003/04

Title	NACE categories	Short Description
Textile, clothing and footwear industries	17, 18, 19	The textile, clothing and footwear industries account for about 5% of total value added in manufacturing in the former EU-15 and about 9% of employment. SMEs and co-operative SME networks play a vital role.
The chemical industries	24,25	ICT and the Internet in particular have fuelled the globalisation of markets for chemical products. E-business may have considerable future impact on this sector which accounts for ~15% of the production value of EU manufacturing.
The electrical machinery and electronics industries	30, 31, 32	The electronics industry is very suitable for e-business because of the high degree of standardisation of products, globalisation of production, and specialisation of firms along the value chain. Its dynamic development calls for continuous monitoring.
The manufacture of transport equipment	34, 35	The transport equipment industries are precursors for economic development in Europe. Large companies are forerunners in using e-business, with considerable implications for all stakeholders in the value chain.
Craft & trade	(17-19), 20, (30-32), (34-35), 36, 45	The craft sector, which includes firms with less than 50 employees from a number of business activities, is vast, in terms of number of enterprises, employment and value added. E-business may become crucial in order for many craft firms to stay competitive with industrial production.
Retail	52	The retail sector represents a cornerstone of economic activity within Europe, with around 3 million retail enterprises currently in the EU, employing nearly 14 million people. As there is still untapped potential, ICT may eventually have major implications for the retail value chain.
Tourism	55.1+2, 62.1, 63.3, 70.31.30, 92.33, 2.52+53	Hotels, restaurants, travel agencies and tour operators (NACE 55 and 63.3) employ about 2.2 million people in the EU. SMEs play a very important role. In some respects, the tourism sector has always been a forerunner in using ICT. E-commerce is exerting a huge impact, challenging intermediaries.
ICT services	64.2, 72	The ICT services sector in many respects is the leading sector and a kind of benchmark with respect to e-business application. E-business can change the nature of ICT services, which has important implications for other sectors which use them.
Business services	74	Business services are a huge sector, involving more than two million enterprises – 99% of which are SMEs – and employing close to 13 million people. ICT and e-business have significant implications for those areas of the business services sector that are based on information and knowledge.
Health and social work	85.1, 85.3	As national health systems suffer from increasing costs and political pressures to constrain these, it is hoped that strategies for the development of an e-health and e-business infrastructure will become key drivers of change.

Executive Summary

Electronic business is gradually coming of age. The business implications of information and communication technologies (ICT) were commonly over-hyped during the boom-phase of the Internet economy, but possibly under-hyped during the subsequent bust-phase. Having experienced the extremes, it appears that the time has come for a clearer, more realistic perspective and assessment. With the growing maturity and diffusion of ICT based applications, a new challenge emerges for firms. Doing business electronically, once an option for innovation and strategic positioning, is about to become a "must" to stay in business. However, the underlying concepts are still changing fast, which translates into a constant "adopt and adapt" for many firms. This report shows empirical evidence of practices and business implications in 10 sectors of the EU economy in 2003/04.

The statistics – trends in 2003/04

- ▶ **ICT infrastructure:** Migration towards broadband Internet connections continues. More than a quarter of firms* had broadband in late 2003
- ▶ **Increase in B2B online trading:** Almost half of all firms* buy supplies online. Many of those, however, say that online purchases are less than 5% of total.
- ▶ **B2C electronic commerce** gains momentum in specific markets. The current boom market is e-tourism, where about a third of firms declare they sell their services online.
- ▶ **Business process integration** is still the big issue, but related software suites are not yet widely diffused. ERP systems are used by about one in five medium-sized firms and one in three large ones.

*in % of employment

W@tch out: potential challenges ahead

- ▶ **E-procurement and e-sourcing:** Win-win or zero-sum game? Saving procurement costs is an opportunity for buyers, but equally puts pressure on suppliers. Efficiency gains (for both sides) compete with pressure on margins.
- ▶ **Unequal gains** from e-business due to high fixed costs: Although e-business solutions are gradually being adapted towards the needs of SMEs, large firms are still in a better position to benefit. Economies of scope are evident.
- ▶ **Vanishing advantage?** As many applications become a commonplace, ICT are increasingly a "must" for companies, but possibly no longer an opportunity for the individual firm to gain strategic advantage.

The relevance of ICT and e-business in 10 sectors in 2003/04

(Note: Condensed presentation based on quantitative statistics, desk research and case studies)

Sector	Function	Internet connectivity	Use of e-standards	ERP / SCM	Sourcing & procurement	Marketing and sales	Overall significance
Textile		~ ~	~ ~ TM	~ ~ TM	~ TM	~	~
Chemical		~ ~ ~	~ ~ TM	~ ~ ~ ~	~ ~ ~	~ TM	~ ~ TM
Electronics		~ ~ ~	~ ~ ~ TM	~ ~ ~ ~	~ ~ ~	~ ~ TM	~ ~ ~
Transport equipm.		~ ~ ~ TM	~ ~ TM	~ ~ ~ TM	~ ~ ~ ~	~ ~ TM	~ ~ ~
Craft' & trade		~ TM	~ TM	~	~ TM	~	~
Retail		~ ~	~ ~	~ ~ TM	~ ~	~ TMTM	~ TM
Tourism		~ ~	~ ~	TM	~ TM	~ ~ ~ ~	~ ~ TM
ICT services		~ ~ ~ ~	~ ~ ~ TM	~ ~	~ ~ ~ ~	~ ~ ~ TM	~ ~ ~ TM
Business services		~ ~ TM	~ TM	~ TM	~ ~	~ ~	~ ~ TM
Health		~ TM	~ TM	~	~ TM	TM	~ TM

~ = low relevance / diffusion; ~ ~ = average relevance / diffusion; ~ ~ ~ = above average relevance / diffusion
 ~ ~ ~ ~ = high relevance / diffusion; TM = in some sub-sectors only

Source: e-Business W@tch (2004) – based on analysis from the respective Sector Studies

Sectoral e-business profiles: manufacturing and services are different

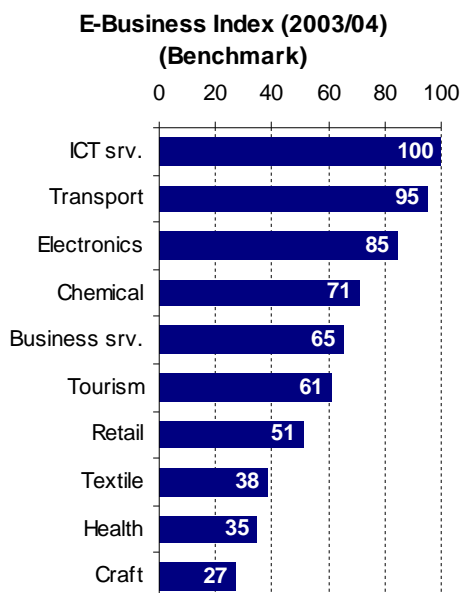
ICT have different functions for enterprises depending on the nature of their business activity. It depends, for example, on whether firms are dealing with large numbers of consumers or mainly with smaller numbers of other businesses, on the kinds of goods or services they produce, and on the specifics of the industry value chain.⁶

For firms from **manufacturing sectors**, increasing the efficiency of supply chain processes has been a key objective for many e-business projects in 2003/04. Moreover, large manufacturers have set up or use sophisticated e-procurement platforms to cut down on procurement costs. **Services** are even less homogeneous than manufacturing sectors. Retail companies, for instance, focus on procurement and logistics related opportunities. Tourism, on the other hand, is experiencing the power of the Internet as a new channel for marketing and sales, with significant impacts on the value chain.

Exhibit 1.1-1:

*The e-Business Index for 10 sectors
(eEurope 2005 benchmarking indicator⁷)*

	A) ICT Infrastructure	B) E-Business Activity
Textile	47	23
Chemical	82	54
Electronics	91	74
Transport	98	91
Craft & trade	29	24
Retail	50	53
Tourism	59	64
ICT srv.	100	100
Business srv.	75	51
Health	38	29



Source: e-Business W@tch (2004)

Among the 10 sectors studied by the e-Business W@tch in 2003/04, the most intensive use of ICT and e-business is made by companies from the ICT services sector (which includes telecommunications and computer related services), manufacturers of transport equipment and of electronics and electrical machinery. There is a caveat with respect to the automotive industries, though, as it is mainly the large players that drive e-business in this sector. Many of the small firms are much less advanced in their ICT use.

The chemical industries and firms offering business related services are also rather intensive e-business users. Again, there are differences between large and small companies and by sub-sector. Knowledge-intensive and operational business service companies, for example, have different profiles regarding the role of ICT.

Tourism and retail are "e-specific" sectors which use ICT for very specific purposes. Tourism is the leader in e-commerce with one third of all companies selling services online. In the retail sector, different business models have emerged, mainly combining traditional channels with online. Pure online retailers are the exception and are concentrated in a few niche markets that lend themselves to e-commerce.

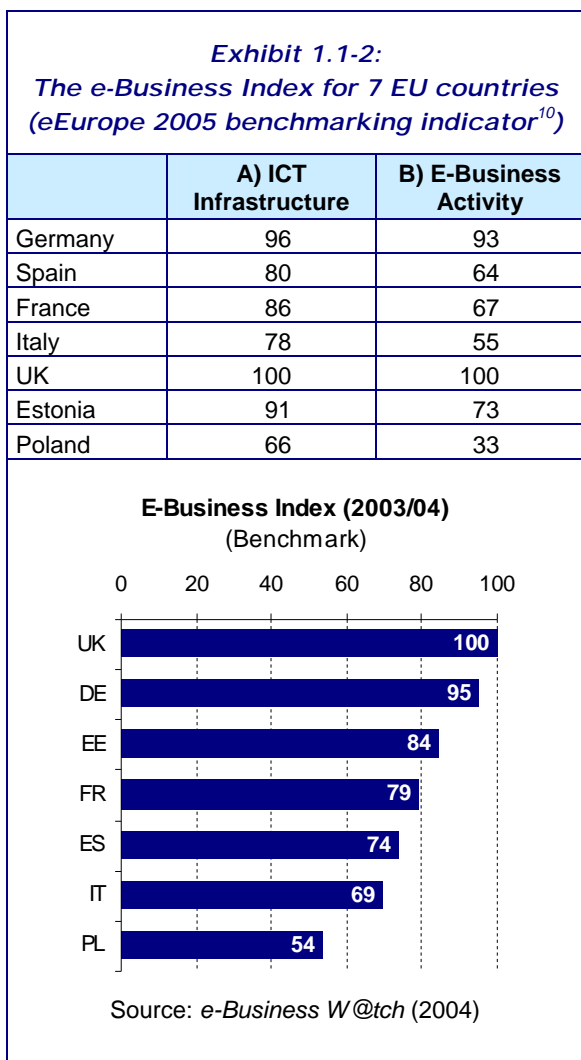
The textile industries (among the manufacturing sectors) and the health & social services sector are among the late adopters of e-business. Although this is partly explained by the dominance of SMEs in these sectors, there is still untapped potential. The health sector, one of the largest in economic terms, is believed to have substantial cost saving potentials through e-business.

⁶ Evidence on the differences in e-business impacts for manufacturing and services is presented in the contribution from Tony Clayton and Peter Goodridge, UK Office for National Statistics (see Chapter 3).

⁷ Cf. Methodological Annex, Specific Notes, No. 1

The e-business alignment of the new EU Member States: a complex picture

In November 2003 the *e-Business W@tch* interviewed decision-makers from more than 2,600 firms in the new EU Member States about the use of ICT and e-business in their firms. The results suggest that the geographic digital divide in business may be smaller than expected. It is definitely smaller than in households.⁸ Firms from Slovenia and Estonia in particular, but also from the Czech Republic, were found to be the "e-leaders" among the new members of the EU.⁹



However, the picture is rather complex. The situation is not consistent across sectors, and location is in no way a reliable predictor for the e-business activity of a company. As a rule of thumb, there tends to be a gap in the diffusion of more advanced e-business technologies and regarding the integration of applications within the company.

Basic connectivity such as Internet access is in place in most of the companies from all Member States. Even broadband access is well deployed. Estonia is head to head with Germany, France and the UK when it comes to the share of firms that report being connected to the Internet with a bandwidth of 2 Mbit/s or more. Companies from other countries, for example from Poland, Hungary or Latvia, are trailing behind in that respect, but not far from the level of lower-tech regions in the current Member States.

Differences still exist particularly with respect to online procurement and supply chain integration. For example, only 19% of companies (in terms of their share of employment) in Poland say they order at least some of their supply goods online, while 46% of companies from the current Member States do. The ratio is similar for related activities and IT supported supply chain integration. E-procurement related activities may thus present a potential concern for e-business policies in the new Member States.

W@tchlist – this will be important:

- ▶ **Improved telecommunication markets:** In some of the new EU Member States, the market structure is still underdeveloped. This is a barrier for efficient use of e-business.

- ▶ **Exchanging good practices** across the EU, including e-business policy practice and good e-business practice in firms.
- ▶ **Focus on productivity:** E-business driven productivity growth is likely to remain an important factor in global competition over the next few years.

⁸ General population surveys on the use of ICT, for example by Eurostat, normally report a different situation and a still significant digital divide between most of the new EU Member States and the EU average.

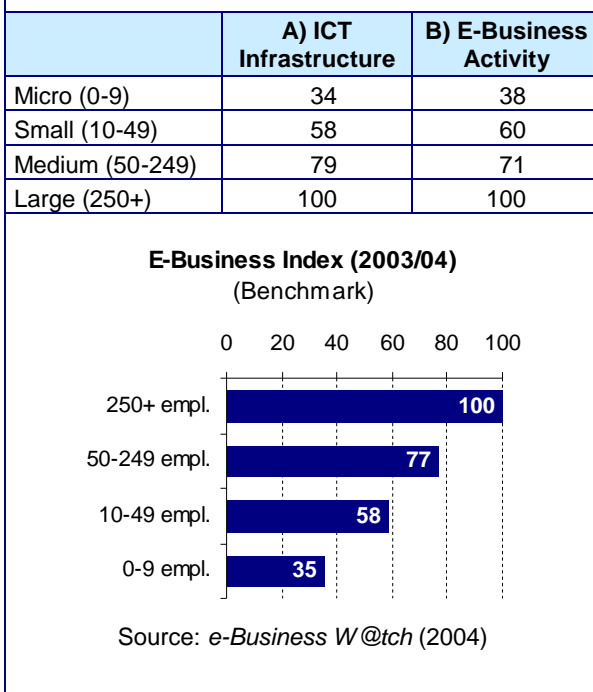
⁹ This evidence is supported by research from INSEAD. Cf. contribution from Soumitra Dutta and Amit Jain, Chapter 3.

¹⁰ Cf. Methodological Annex, Specific Notes, No. 1

Large firms continue to drive the development – but SMEs catch up

Increasing the efficiency of business processes, for example reducing processing costs related to commercial transactions, is a major objective driving companies to implement e-business. This applies to companies from all size-bands, but fixed costs for technology implementation and maintenance tend to be relatively higher for small companies. Larger firms, which can afford more powerful solutions, are more likely to benefit from efficiency gains. In fact, the diffusion of ICT infrastructure and of advanced e-business software solutions for automating business processes (such as ERP solutions and SCM software) increases steadily by company size.

Exhibit 1.1-3:
The e-Business Index by firm size
(eEurope 2005 benchmarking indicator¹¹)



The ICT systems of large companies obviously tend to be more complex and sophisticated than those of small firms. This translates into more intensive and advanced electronic business practices. Good examples are companies in the transport equipment manufacturing sector and the chemical industries. In these sectors in particular, there is a significant digital divide between the large, often multinational firms, which are international leaders in e-business adoption, and the many small supply companies which often adhere to much more traditional forms of trading.

On the other hand, there are many SMEs that have specialised in trading online, mostly over the Internet, particularly in the retail and tourism sectors. The share of firms conducting more than 5% of their transactions online is, in fact, highest among the small enterprises (10-49 employees), both for selling and for procuring online. In retail, the percentage of companies that makes online sales is consistent across size-bands with the exception of micro-firms.

Many "e-traders" among small companies ...

- ▶ Some SMEs try to specialise in trading online, mostly over the Internet, particularly in the retail and tourism sectors.
- ▶ The share of firms conducting more than 5% of their transactions online is quite consistent across size-bands. Only micro-enterprises (with <10 employees) are lagging behind both for selling and for procuring online.
- ▶ In retail, pure online players create immense pressure for shop-retailers in special markets such as electronics.

... but higher degree of system integration in large firms

- ▶ Intra-firm links of e-commerce sales systems to other business functions (accounting, stock management) are a domain of large firms.
- ▶ In retail, one in four SMEs that makes online sales has integrated its sales system, while nearly 60% of large retailers that sell online have done so.
- ▶ Close to 50% of all firms (and 75% of large ones) that sell goods online offer secure transaction capability (SSL, TLS).

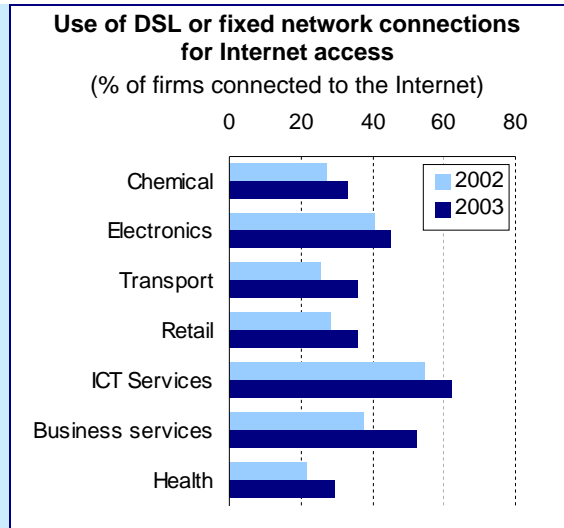
¹¹ Cf. Methodological Annex, Specific Notes, No. 1

Important trends from 2002 – 2003/04

Continuous upgrading to broadband Internet connections

As pointed out in the 2003 edition of this report, "an incipient migration towards DSL connections among small and medium-sized enterprises" was already observable, but "this promising trend (...) needs to be confirmed by future research". In fact, this trend has been consolidated in 2003/04.

While the diffusion of Internet access appears to have reached a first level of saturation, the percentage of firms with a DSL and/or fixed network connection (out of those with Internet access) has further increased in all sectors monitored by the *e-Business W@tch*. The rapid deployment of broadband connections is an objective that is backed by the eEurope 2005 Action Plan.



Increasing maturity of e-procurement and e-sourcing techniques

Sector	Make online purchases	
	2002	2003/04
Chemical	37	51
Electronics	58	59
Transport equipment	40	65
Retail	36	38
ICT Services	78	74
Business services	48	50
Health	37	34

Firms representing ...% of employment.
 Data for 2002: DMS 6/2002, EU-4 (DE, FR, IT, UK).
 Data for 2003: DMS 3/2003 & 11/2003, EU-5 (DE, ES, FR, IT, UK).
 Source: *e-Business W@tch* (2004)

Statistical figures do not tell the whole story: Companies have discovered the cost saving opportunities of e-procurement and e-sourcing. In most sectors, more than 50% of firms (in % of their employment share) are purchasing supply goods and/or MRO goods online, through their suppliers' websites, Internet trading platforms and/or dedicated firm-to-firm connections (EDI, extranet). The *e-Business W@tch* estimates that in 2003, across the 10 sectors studied, firms purchased about 6% of their total supply goods online. The share of electronic purchases appears to be highest in ICT services (close to 15%) and certain manufacturing sectors, such as electronics and transport equipment (about 7% each).

Boom in e-tourism: Almost one in every three firms allows for online ordering

Percentage of firms making online sales (selected sectors): 1996-2003

The Internet has become an indispensable communication and transaction channel for the tourism industry. About one in three companies from the sector allows customers to make online orders (for example reservations for hotel rooms or flight tickets). About two thirds of those firms say that online orders account for at least 5% of their total sales, and about one fifth report that they make already more than 25% of their business online.

